An Inventory of Biological Samples Taken in the British Columbia Groundfish Fishery during 1985

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July 1986

Canadian Data Report of Fisheries and Aquatic Sciences No. 606

86-06798/

Canadian Data Report of Fisheries and Aquatic Sciences

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AN INVENTORY OF BIOLOGICAL SAMPLES TAKEN IN THE BRITISH COLUMBIA GROUNDFISH FISHERY DURING 1985

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Cat. No. Fs 97-13/606E ISSN 0706-6465

Correct citation for this publication:

Hamer B. L., N. L. Venables, J. B. Lucas, and D. P. Adams. 1986. An inventory of biological samples taken in the British Columbia groundfish fishery during 1985. Can. Data Rep. Fish. Aquat. Sci. 606: 15 p.

ABSTRACT

Hamer B. L., N. L. Venables, J. B. Lucas, and D. P. Adams. 1986. An inventory of biological samples taken in the British Columbia groundfish fishery during 1985. Can. Data Rep. Fish. Aquat. Sci. 606: 15 p.

An inventory of biological samples taken in the British Columbia groundfish fishery during 1985 is presented. Samples are separated by species, area, time, depth range, sex, and type of sample. A total of 126 samples of 14 species were collected. Sampling by species generally reflected abundance in landings except where special research considerations applied.

Key words: Groundfish fishery, biological sampling

RESUME

Hamer B. L., N. L. Venables, J. B. Lucas, and D. P. Adams. 1986. An inventory of biological samples taken in the British Columbia groundfish fishery during 1985. Can. Data Rep. Fish. Aquat. Sci. 606: 15 p.

On présente un inventaire d'échantillons biologiques prélevés dans la pêche du poisson de fond de la Colombie-Britannique au cours de 1985. Les échantillons sont séparés en fonction des espèces, de la zone, de la période, de la profondeur, du sexe et du type. Au total, 126 échantillons de 14 espèces ont été prélevés. L'échantillonnage par espèces traduisait généralement l'abondance des débarquements sauf lorsqu'il fallait tenir compte de considérations particulières de recherche.

Mots-clés: pêche du poisson de fond, échantillonnage biologique

INTRODUCTION

The collection of biological samples from the groundfish fishery off the west coast of Canada is an important function of the Pacific Biological Station's Groundfish Program. Biological sampling is fundamental to our understanding of the dynamics of groundfish stocks, especially considering the extended longevity of many of these species (e.g. rockfish, sablefish, flatfish and dogfish).

Sampling is conducted primarily at the ports of Vancouver, Steveston, Ladner, and Prince Rupert, and at sea aboard commercial fishing vessels. Annual reports of these activities have been published in this format since 1970.

The total number of samples collected in 1985 was 126, representing a 15% increase over 1984. The number of samples by species reflected the volumes and patterns of landings in the fishery. The number of lingcod and walleye pollock samples increased reflecting increased landings, while the reduced Pacific cod landings resulted in fewer Pacific cod samples. Fewer Pacific ocean perch samples were collected due to many rockfish vessels unloading in United States ports. Dover sole sampling increased because the landings were spread over a longer period of time. Nearly all of the catch of Pacific hake (excluding catches from the international joint venture fishery) continued to be landed by Canadian trawlers directly to United States ports as was the case in 1983 and 1984. However, there were some hake landings offloaded in Canadian ports thus allowing for the collection of samples.

Fishing effort by the sablefish fleet (trap gear in particular) was even more intensive this year, resulting in a shorter fishery. The bulk of these landings continue to consist mainly of dressed-frozen product. Sablefish samples were collected by Pacific Biological Station representatives at sea aboard commercial fishing vessels.

The international joint venture hake fishery in major area 3C functioned on a smaller scale than the previous year with the absence of the USSR as one of the major participants. This fishery did continue to result in many Canadian trawlers withdrawing from the domestic fishery for extended periods of time between the months of July and October.

Of the 33,189 fish sampled, nearly all were processed for length measurements and sex data. Of these, 16,183 were processed for age determination through the collection of otoliths and fin sections or combinations of these structures. Maturity state readings were collected from most samples, while parabranchial-lesion incidence was noted in the majority of Pacific cod and walleye pollock samples. Observations of stomach contents were indicated in most samples collected in 1985. Nine of the Pacific ocean perch samples were for length frequency data only. These samples were collected to identify catch locality in lieu of logbook information. The following figures indicate a percentage breakdown by species of the number of samples collected at ports of landing; flatfish--19%; Pacific cod--19%;

Pacific ocean perch--18%; walleye pollock--18%; other rockfish--10%; lingcod--10%; Pacific hake--3%; and spiny dogfish--3%. A summary table of samples collected from groundfish landings by species and International (major) Area (Fig. 1) is given in Table 1.

ACKNOWLEDGMENTS

The collection of statistics and biological samples from the commercial fishery remains a cooperative effort among port samplers, fishermen, and processors. The Pacific Biological Station port sampling staff would like to express their sincere thanks to fishermen and processors for their time and assistance during 1985.

Table 1. Number of samples collected from British Columbia groundfish landings in 1985, by species and International Area.

Species	Area								
	3C	3D	4B	5A	5B	5C	5D	5E	Total
Flatfish									
Dover sole	-	-	-	-	-	-	9	3	12
English sole	-	-	-	-	-	-	8	-	8
Rock sole	-	-	-	1	1	-	2	-	4
Rockfish									
Canary rockfish	-	1	-	-	-	1	-	-	2
Pacific ocean perch	-	-	-	-	5	4[a]	-	14[b]	23
Redstripe rockfish	-	-	-	-	-	-	-	1	1
Silvergray rockfish	-	1	-	-	-	3	-	1	5
Yellowmouth rockfish	-	1	-	-	-	-	-	1	2
Yellowtail rockfish	-	1	-	1	-	-	-	-	2
Roundfish									
Lingcod	2	6	-	2	2	-	-	-	12
Pacific cod	3	-	1	2	1	4	13	-	24
Pacific hake	-	-	4	-	-	-	-	-	4
Walleye pollock	-	-	9	-	-	-	14	-	23
Selachii									
Spiny dogfish	1	-	-	3	-	-	-	-	4
Total	6	10	14	9	9	12	46	20	126

[a]One sample was taken from 2 areas (5B and 5C).
[b]One sample was taken from 2 areas (5B and 5E).

Table 2. Dover sole (Microstomus pacificus) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5D	June	38- 90	66	233	299[a]	-	234	233	PRF13982-14214
	July	32- 84	63	237	300[a]	-	237	237	PRF14392-14628
	July	39- 90	112	185	297[a]	-	185	185	PRF14829-15013
	Aug.	47- 95	128	175	303[a]	-	175	175	PRF15225-15399
	July	41- 85	89	211	300	-	211	211	PRF15014-15224
	Sept.	38- 88	122	180	302[a]	-	180	180	PRF16058-16237
	Oct.	40-112	138	162	300	-	162	162	PRF16432-16593
	Aug.	-[b]	79	224	303[a]	-	224	224	PRF15614-15837
	Sept.	56- 65	81	220	301[a]	-	220	220	PRF15838-16057
5E	Jan.	60-340	250	59	309	-	59	59	PRF13534-13592
	June	160-250	240	90	330[a]	-	-	-	---
	Aug.	203-252	54	250	304[a]	-	250	250	VF13001-13250
Total fish sampled					3648			2136	

[a]No maturity data collected.
[b]No depth available.

Table 3. English sole (Parophrys vetulus) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length M	Length F	Length T	Age (otolith) M	Age (otolith) F	Age (otolith) T	Serial number
5D	Apr.	42-51	113	187	300	-	187	187	PRF13593-13779
	May	37-61	98	202	300	-	202	202	PRF13780-13981
	June	38-62	92	203	295	-	-	-	---
		--[a]	125	227	352	-	-	-	---
	July	47-73	124	177	301	-	177	177	PRF14215-14391
		38-84	113	247	360	-	-	-	---
	May	42-50	93	229	322	-	-	-	---
	July	--[a]	100	200	300	-	200	200	PRF14629-14828
Total fish sampled					2530			766	

[a]No depth available.

Table 4. Rock sole (Lepidopsetta bilineata) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5A	June	36-37	25	275	300[a]	-	275	275	VF12701-12975
5B	July	-[b]	28	272	300	-	272	272	VF12401-12672
5D	Aug.	13-39	88	214	302[a]	-	214	214	PRF15400-15613
	Sept.	28-41	108	194	302[a]	-	194	194	PRF16238-16431
Total fish sampled					1204			955	

[a]Maturity data not collected.
[b]No depth available.

Table 5. Canary rockfish (Sebastes pinniger) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
3D	Feb.	82-102	188	112	300	188	112	300	VNRF18601-18900
5C	Nov.	82- 96	232	67	299	232	67	299	VNRF20701-21000[a]
Total fish sampled					599			599	

[a]One otolith was discarded.

Table 6. Pacific ocean perch (Sebastes alutus) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5B	Mar.	134-165	263	128	391a	-	-	-	---
		140-190	112	88	200	112	88	200	PRRF18501-18700
	Oct.	138-180	132	168	300	132	168	300	VNRF20101-20400
		-b	183	117	300	183	117	300	VNRF20401-20700
		121-143	135	165	300	135	165	300	VNRF19801-20100
	Apr.	-b	120	196	316	-	-	-	---
5B, 5C	Apr.	-b	33	147	180	-	-	-	---
5C	June	130-160	110	210	320a	-	-	-	---
	Oct.	80-178	173	127	300	173	127	300	PRRF20501-20800
5E	Mar.	115-250	171	129	300	171	129	300	PRRF18701-19000
		130-182	154	134	288a	-	-	-	---
	Apr.	120-240	176	125	301	-	-	-	---
	May	160-314	131	129	260	131	129	260	PRRF19201-19460
		-b	120	80	200	-	-	-	---
		135-160	150	150	300	150	150	300	PRRF19501-19800
	June	127-250	153	154	307a	-	-	-	---
	July	120-165	123	161	284	44	56	100	PRRF19801-19900
	Aug.	138-170	175	125	300	175	125	300	VNRF19501-19800
	Oct.	205-251	168	132	300	168	132	300	PRRF20801-21100
	Nov.	125-160	150	150	300	150	150	300	VNRF21001-21300
	Dec.	124-170	97	171	268a	-	-	-	---
	Sept.	146-180	184	116	300	184	116	300	PRRF20201-20500
5B & 5E	Feb.	100-220	169	134	303	-	-	-	---
Total fish sampled					6618			3560	

[a]No maturity data collected.
[b]No depth available.

Table 7. Redstripe rockfish (Sebastes proriger) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
5E	Jan.	120-135	79	222	301	54	146	200	VNRF17901-18100
Total fish sampled					301			200	

Table 8. Silvergray rockfish (Sebastes brevispinis) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
3D	Mar.	-[a]	151	187	338	-	-	-	---
5C	Feb.	100-120	126	114	240	126	114	240	VNRF18901-19140
		125-130	139	161	300	48	52	100	PRRF18401-18500
	Apr.	-[a]	172	145	317	111	89	200	PRRF19001-19200
5E	Apr.	130-140	181	148	329	-	-	-	---
Total fish sampled					1524			540	

[a]No depth available.

Table 9. Yellowmouth rockfish (Sebastes reedi) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
3D	Jan.	115-122	186	121	307	120	80	200	VNRF18301-18500
5E	Sept.	118-155	119	181	300	119	181	300	PRRF19901-20200
Total fish sampled					607			500	

Table 10. Yellowtail rockfish (Sebastes flavidus) samples taken during 1985.

Area	Month	Depth (fm)	Number sampled: Length-maturity M	F	T	Age (otolith) M	F	T	Serial number
3D	Jan.	80-100	146	154	300	146	154	300	VNRF18101-18300 VNRF18501-18600
5A	Mar.	92-105	161	139	300	161	139	300	VNRF19201-19500
Total fish sampled					600			600	

Table 11. Lingcod (Ophiodon elongatus) samples taken during 1985.

			Number sampled								
			Length-maturity				Age (fin ray)				
Area	Month	Depth (fm)	M	F	U	T	M	F	U	T	Serial number
3C	May	44-60	66	159	-	225	66	159	-	225	30815-31039
	July	50	57	144	-	201	57	144	-	201	31456-31656
	Aug.	32-50	35	154	-	189	35	154	-	189	31038-31226
	Sept.	42-62	86	114	-	200	86	114	-	200	41301-41500
	Oct.	58-64	40	89	-	129	40	89	-	129	41601-41729
	May	-a	50	150	-	200	50	150	-	200	30001-30200
3D	Apr.	72-84	27	173	-	200	27	173	-	200	30201-30400
	May	74-78	13	177	-	190	13	177	-	190	30401-30590
5A	Sept.	48-62	59	141	-	200	59	141	-	200	41000-41199
		58-87	63	170	-	233	63	170	-	233	42101-42333
5B	June	-a	43	181	-	224	43	181	-	224	30591-30814
	Oct.	52-80	37	162	1	200	37	162	1	200	41801-42000
Total fish sampled						2391				2391	

[a]No depth available.

Table 12. Pacific cod (Gadus macrocephalus) samples taken during 1985.

			Number sampled					
			Length-cyst-maturity			Age (fin ray)		
Area	Month	Depth (fm)	M	F	T	M	F	T
4B	Feb.	68- 80	93	88	181	-	-	-
3C	Apr.	34- 38	158	129	287	-	-	-
		30- 36	138	136	274	-	-	-
	Nov.	60- 65	111	143	254[a]	-	-	-
5A	Sept.	48- 62	88	108	196[a]	-	-	-
		58- 87	119	122	241[a]	-	-	-
5B	Oct.	70- 75	122	183	305[a]	-	-	-
5C	Jan.	65- 94	108	128	236[a]	-	-	-
	Mar.	62- 75	100	121	221[a]	-	-	-
	Apr.	65- 75	125	133	258[a]	-	-	-
	Mar.	60- 70	102	139	241	-	-	-
5D	Jan.	68- 72	132	133	265[a]	-	-	-
	Apr.	56	134	141	275[a]	-	-	-
	Feb.	58- 60	79	81	160	-	-	-
		57- 66	95	105	200	95	105	200
	Mar.	42- 65	89	111	200	89	111	200
	June	44- 64	101	106	207[a]	-	-	-
	Feb.	41- 62	118	82	200	60	40	100
	June	-[b]	138	83	221[a]	-	-	-
	Sept.	44-110	111	129	240[a]	-	-	-
	May	12- 67	135	78	213[a]	-	-	-
	July	38- 84	135	73	208[a]	-	-	-
	Sept.	38- 84	112	128	240[a]	-	-	-
	July	19- 85	129	90	219[a]	-	-	-
Total fish sampled					5542			500

[a]Maturity data not collected.
[b]No depth available.

Table 13. Pacific hake (Merluccius productus) samples taken during 1985.

			Number sampled						
			Length-maturity			Age (otolith)			
Area	Month	Depth (fm)	M	F	T	M	F	T	Serial number
4B	Mar.	110	197	3	200	197	3	200	H26094-26293
	Mar.	140-180	199	1	200	199	1	200	H26294-26493
		100-120	182	18	200	182	18	200	H26494-26693
	Oct.	70- 80	101	99	200[a]	101	99	200	H27680-27879
Total fish sampled					800			800	

[a]Maturity data not collected.

Table 14. Walleye pollock (Theragra chalcogramma) samples taken during 1985.

			Number sampled							
			Length-cyst-maturity				Age (fin ray)			
Area	Month	Depth (fm)	M	F	U	T	M	F	T	Serial number
4B	Feb.	80-100	204	45	-	249	80	20	100	VNP1-100
		80-100	125	141	-	266	41	59	100	VNP101-200
	Oct.	70- 80	138	116	-	254[a]	58	42	100	VNP201-300
	Nov.	65- 70	132	120	-	252	42	58	100	VNP301-400
		75- 80	151	118	-	269	54	46	100	VNP401-500
	Nov.	60- 90	139	112	-	251	52	48	100	VNP501-600
		50- 75	165	83	-	248	71	29	100	VNP601-700
	Dec.	60- 80	133	121	-	254	53	47	100	VNP701-800
		60- 80	152	102	1	255	57	43	100	VNP801-900
5D	Jan.	35- 45	79	121	-	200	79	121	200	P55200-55399
		35- 40	101	149	-	250	41	59	100	P55400-55499
		35	59	191	-	250	23	77	100	P55500-55599
		60-120	65	175	-	240	27	73	100	P55600-55699
	Feb.	50-130	43	207	-	250	17	83	100	PRP1-100
	Oct.	45- 60	141	161	-	302	70	80	150[b]	PRP101-250
		50- 60	102	201	-	303[a]	50	100	150[b]	PRP251-400
	Nov.	60- 75	82	168	-	250[a]	49	101	150[b]	PRP401-550
		50- 80	107	143	-	250[a]	64	86	150	PRP551-700
		60	80	170	-	250[a]	48	102	150	PRP851-1000
	Dec.	--[c]	90	165	-	255	37	63	100	VNP901-1000
	Nov.	30- 80	99	151	-	250[a]	62	88	150	PRP701-850
		55- 60	74	177	-	251[a]	45	105	150	PRP1001-1150
	Dec.	80- 91	107	143	-	250[a]	64	86	150	PRP1151-1300
Total						5849			2800	

[a]Maturity data not collected.
[b]Otoliths and fins taken.
[c]No depth available.

Table 15. Dogfish (Squalus acanthias) samples taken during 1985.

			Number sampled						
			Length-maturity			Age (spine)			
Area	Month	Depth (fm)	M	F	T	M	F	T	Serial number
3C	Feb.	35-45	3	316	319[a]	-	-	-	---
5A	Jan.	90-95	-	304	304[a]	-	-	-	---
		80-85	6	313	319[a]	-	-	-	---
		80-90	-	336	336	-	336	336	29500-29835
Total					1278			336	

[a]No maturity data collected.

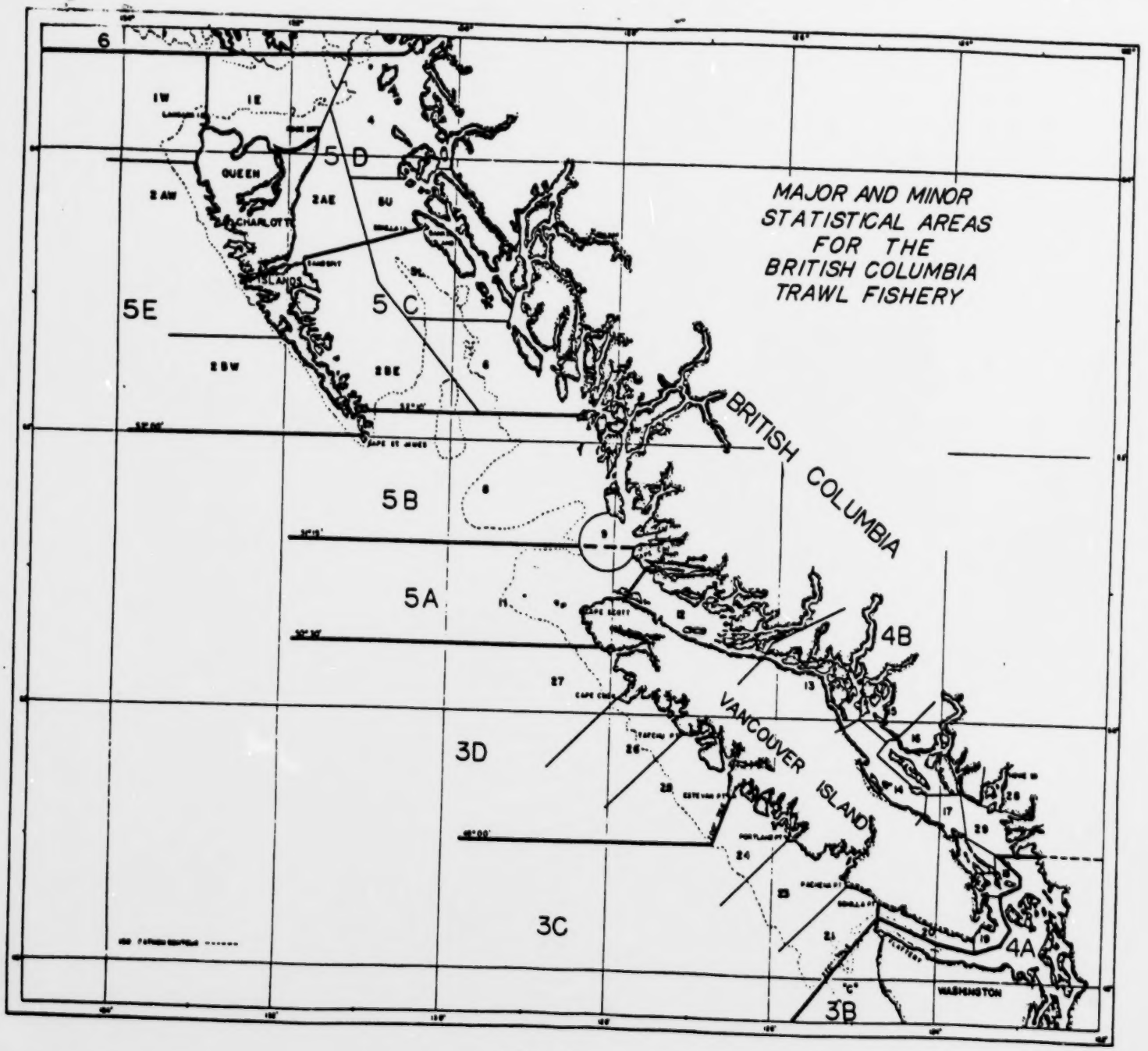
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Fig. 1.